

Monthly Cost and Performance Report

THE SCHWERDTFEGER LIBRARY
1225 W. Dayton Street
Madison, WI 53706

for Contract No. N00173-01-C-2024

October 2001

Issued by the University of Wisconsin - Space Science and Engineering Center

Prepared under contract by Program Manager Christopher Velden

For Jeffrey Hawkins
Naval Research Laboratory
Code 7531
Monterey, CA 93943-5006

Contract amount: \$1,220,000

1. Contract No.: N00173-01-C-2024
2. Reporting Period: September 2001
3. Total Amount Funded to Date: \$155,000
4. Total Amount Spent to Date: \$106,705
5. Total Amount Spent this Period: \$18,746
6. Estimated Cost to Complete: \$1,220,000
7. Schedule Status: On Schedule

8. Contractor Hours Worked this Period:	Velden	8	All Tasks
	Olander	176	Winds, ODT
	Santek	8	Winds
	Benson	64	Winds

9. Technical Progress

A) General: In support of JTWC operations at Pearl harbor, satellite-derived product images are being processed and exported on a routine basis. JTWC is acknowledging this data as important to their operations and post analysis and therefore plans are to continue dissemination until further notice. NRL-MRY also receives these products on a routine basis.

B) Task: Objective Dvorak Technique (ODT). The new ODT version has been prepared for porting to NRL, and this package is being integrated into the SeaSpace TeraScan system as an algorithm upgrade.

New science includes experimenting with new methods to analyze scene types and augmenting it with convective symmetry and extent analysis. Specific attention is being given to EYE and EMB scene types, since user feedback has indicated manual overrides are most common in these situations. The shape and character of the eye is being considered. Once the scene type is better identified, and an improved representation of the surrounding cloud temperature threshold (using means or other methods) is determined, a more reliable rapid intensification flag should result, leading to better initial (Raw t#) estimates for hurricane and greater strength. These new scene and cloud analyses are also being looked at in order to try and extend the ODT to tropical storm and lesser intensities.

C) Task: Winds. Real-time GMS-5 IR, water vapor and VIS wind data sets are being routinely generated, and the plot files disseminated to JTWC. Plans are to continue to routinely produce and transmit these wind sets to JTWC four times a day. The winds are also being disseminated to NRL-MRY and FNMOC. Winds over the Arabian Sea and Indian Ocean regions are being derived from multispectral Meteosat 7 and 5 imagery being obtained from the European Space Agency on a routine basis. The wind sets are being disseminated to NRL-MRY and FNMOC for evaluation.

The job of porting CIMSS winds algorithm upgrades to the DoD workstation environment is continuing. A version of the winds processing code that operates on GOES data is being tested. Upon completion, this will be ported to NRL-MRY for DoD workstation integration.

The winds code has been modified to incorporate the new PLOD radiative transfer/transmittance model for GOES 8-12. Testing in a development setting has revealed some discrepancies that will require further investigation prior to implementation into the deliverable code.

D). Task: AMSU. The CIMSS AMSU horizontal retrieval algorithm developed to adjust radiances to scan geometry and TC environments is being evaluated in real time during the 2001 TC season by collaborators at JTWC and NHC/TPC. The estimates have been acknowledged in a few NHC/TPC forecast discussions, but we have also noted some big problems, especially in strong storms with very small eyes. These cases are being further investigated.

A multichannel approach is being investigated that will incorporate radiance information from Channel 8 (55GHz) into a multiple regression algorithm along with the established channel 7 information. It is hoped the additional information on the warm core structure seen in Channel 8 will be less affected by hydrometeor attenuation, and will help reduce the MSLP estimate variance. Datasets are being collected and analyzed.

10. Briefs/Reports: None.

11. Travel: None supported by funds from this grant.

12. Plans for Next Month.

Continue the real-time processing and transfer of satellite wind datasets to JTWC for analysis, and to NRL-MRY/FNMOC for quantitative input into NOGAPS.

AMSU physical retrieval algorithm: Continue real time evaluation and dataset collection. Continue the multispectral investigation.

Continue to collaborate with NRL-MRY/FNMOC and AFWA on integration of advancements and modifications to the satellite winds tracking code into the Navy and Air Force environments.

ODT: Test the new cloud and scene type analyses.

13. Technical Problem Areas: None